

The E-City or the City on the Cloud

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1 ABSTRACT

We all know that the city emerges in history as concentration of people. The concentration permitted by the direct relationship between them, the exchange of ideas, the diffusion of innovations and the organization and division of labor. When cities arise in ancient times, communication between people is possible only through direct personal relationship. There were no other technologies and there were no other types of communication. We can speak well of “dcity”. So cities have existed for a long time, based on direct personal relationships.

From the nineteenth century a great development of transportation systems in the world is produced. This allows the extension and dissemination of the city. Progressively is no longer necessary next location of activities. New means of transport allow settlements farthest people that work together. The phenomenon of large metropolitan areas and large urban areas appears. The concentration of people and activities is no longer necessary. Transportation allows relations between persons are located, over time, increasingly remote areas. Relationships that allows transport do not replace the personal relationship they complement. The historic town remains an element of identity and economic and social activities are based on direct relationships and extensive use of transport. We can speak well of “tcity”.

Finally, from a few years ago, the Internet network allows daily relations among people unlocated. People can relate among ourselves regardless of where we are. Innovation and division and organization of work can be done, in fact, without physical presence. But again, these relationships do not replace but complement earlier. Simultaneously, the network provides access to vast amounts of information. We can speak well of “ecity”, a city without geography.

All this leads us to the possibility and the need to manage the cities and territory otherwise, another way of management yet to design and to define with the use of new technical tools. This requires a new way of thinking about the functioning of our democratic society where the limitation is time. There is no real time availability to all the possibilities that new technologies allow.

All this when some of the basic contradictions of our cities are not resolved. Specifically our cities, ie the normal life of its citizens, are not sustainable as reports consistently show the “Living Planet Report” of WWF.

In this context, the “smart city” does not exist. There are new technological tools that increase the efficiency of the activities of relationship. These tools are constantly changing and affecting specific aspects, and often very partial, to all activities of all types that occur each day in the city.

The text is a reflection about this new situation and the consequents in city administration and urban planning.

2 CITY AND KNOWLEDGE DIFFUSION

2.1 The beginning of the city

Are well known causes that explain the origin of the city. People concentration allows exchange of ideas and experiences and division of labor. So cities, in origin, are centers of knowledge diffusion, also cities are centers with more efficient production of goods and services. All this activity is based on direct relations between people and walk for contact between them.

The direct relations between people concentrated in city produces a community. This community occupies a geographical space. The limits of this space are fixed by maximum distance that can be traveled walk.

People realize all activities on this space: reside, work, entertainment, take steps ...

The community creates an administrative organization, local administration, with certain functions: according regulations, safety, public works, public celebrations ...

Therefore, in the origin, we have a community organized with local administration (municipality), which realize activities by direct relations between people and limited for walking distance. This situation is an initial situation of cities based on direct relation between people. We can name this kind of city as d-city, which inhabits d-community.

In the historical period of the Roman Empire (Fustel de Coulange, 2001), the Roman municipalities governed the city and a large surface of territory around. Therefore, municipalities has a territorial limit and people identify with their city.

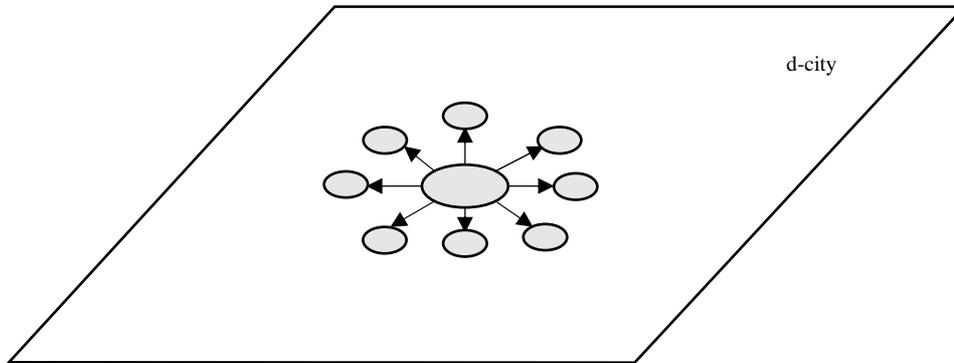


Fig 1. Scheme of d-city, concentration people based in direct relations between them and geographically limited by walking distance. In this situation, normally the cities are far apart and each city is very autonomous. Therefore, it has been for a long time in the history of humanity.

2.2 The development of metropolitan areas

Late nineteenth and early twentieth centuries, a technological development of motorized transport systems occurs. This technological innovation will allow people to develop different activities in different areas of the territory. Technological innovation in the field of transport has continued to the present.

The news transport's systems allows news relation between people. However, these new relationships do not replace the above. These news relationships are further produced prior. Or rather, people have direct relations in home or district. Further people travel to work/studies and have direct relation with people's work. Further people travel to shopping and have direct relation with people shops. Further people travel to public services (health ...) and have direct relation with their attendants. Further, so it is with all activities.

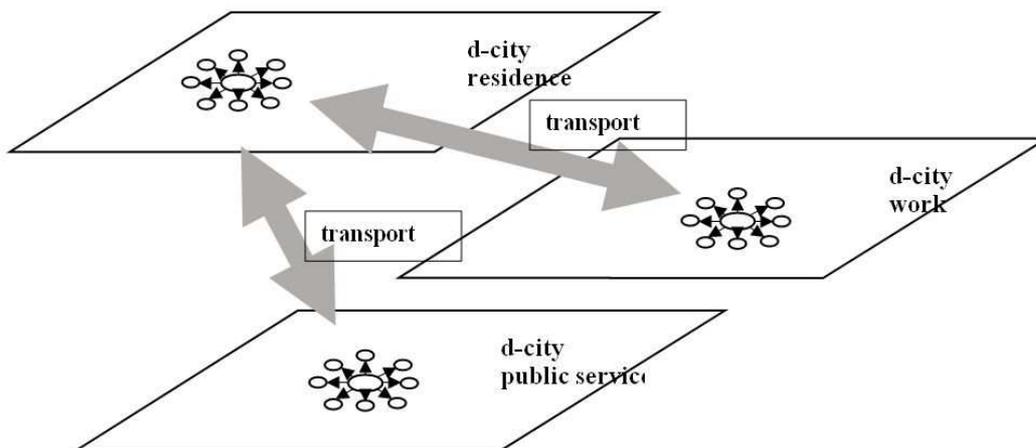


Fig 2. Schem of t-city, people travel usually between different d-city

This new reality creates a new form of land use and distribution functions. It is known as metropolitan areas or urban functional areas. In these new reality each activity (work, studies, public services ...) have their hinterland. Generally, it not exist the same hinterland for each activity. In this situation now, the activities above concentrated in d-city, are distributed on territory and connected between them. We can name this new reality as a t-city: any d-city activities connected by transport system.

In any case, this new reality is a geographical reality: the d-city and transport system are located in territory. In many locations, administration has attempted to govern this new reality by creates a specific metropolitan

administration. Difficult question because it is not clear the need for a new level of administration and how should the election of the new government to be representative to other levels of government.

For example, in Valencia (Spain) it exist four principal administration level and further another complementary administration. The principal levels administration are municipalities, autonomous community (regional government), Spanish State and European administration. As a complementary administration it exist the provinces and association of municipalities with different objectives. The metropolitan area of Valencia is today very large (IIDL, 2011). So geographical space of metropolitan area of Valencia is about one-third of Autonomous Community's territory and about one-third of Autonomous Community's population. The potential new metropolitan administration must take functions of municipalities and regional government and must have a good budget for public works and public metropolitan services. Municipalities and regional government not want translate Eigen functions (and the budget) to another administration, which do not control.

Today regional government of Autonomous Community of Valencia manages some public services through public companies created for the purpose.

However, in fact, we can see this new reality, the t-city, inhabited by people, the t-community. The people of the t-community realizes some activities in the d-cities and travel between them by system transport. The potential relationships increase. Also, increase potential innovation and diffusion.

2.3 The development of e-city

Since 1990 develops WordWideWeb technology. Since 1993 is possible free use and private use of this technology and digital net or internet. This new technology allows communications between people located anywhere in the world. As we all know, the number of Internet users has been a great increase in the world and allows an extraordinary diffusion of knowledge (Townsend, 2013).

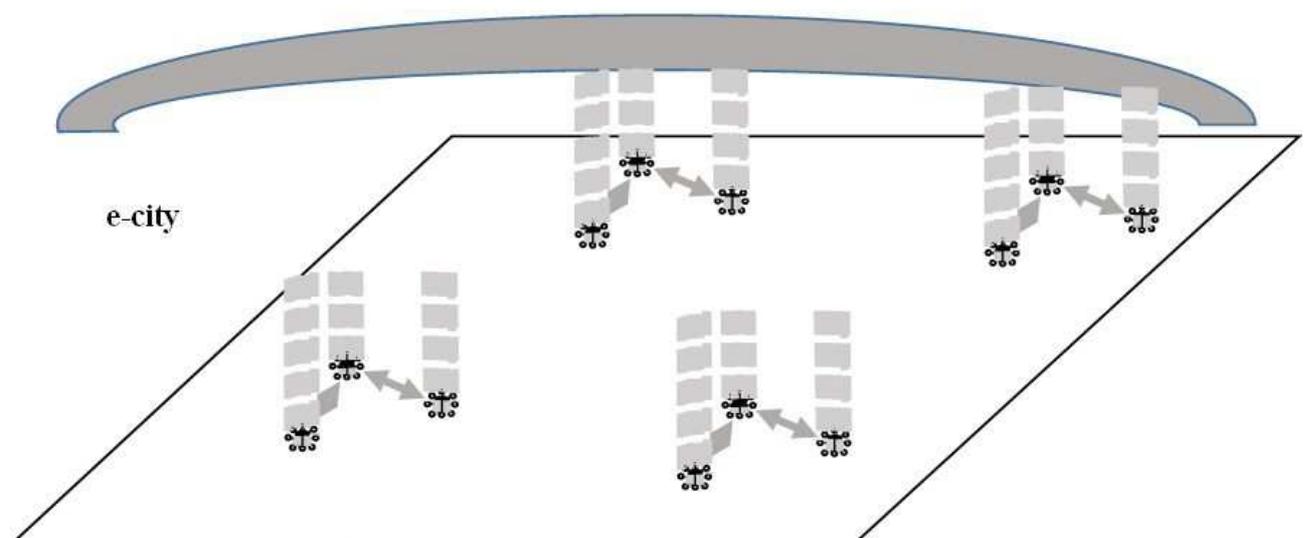


Fig 4. The global e-city.

Nevertheless, in fact it is spreading an international Internet community. For example, in this conference people have direct relation, people traveled here and people inscribed by internet application. After conference, probably, several groups of people maintain contact though internet applications. Therefore, the e-community is formed. The common interest, similar valor's systems and costumes in e-relations creates the e-community.

In the same way that membership in the local community creates a sense of identity, also membership of e-community creates a sense of identity. More and more people have a sense of global identity in addition to local and national identity.

In this situation, the limit is the time. Actually, our community is based simultaneous in direct relations, transport relations and e-relations. However, the day have only 24 hours. So, for each people, is not possible to maintain regularly the contacts with all communities.

Finally, I remember that some activities of people can be realize by digital applications. However, digital applications need a complete system of creation, customer service and maintenance. Applications are in continuous change. Governments or private companies can create all sorts of applications.

3 ABOUT A SMART CITIES CONCEPT

Obviously, the “smart city” is an undefined concept. Can be a description about the possibilities of new digital technologies for improve activities in the city (Towsend, 2013) especially for communication technologies. From this point of view, the “smart city” is a business opportunity. Really, ICT companies are well advanced and have many future possibilities. But only especially in large cities. The new generations of young people have adapted quickly to changes.

However, not all people use or know how to use the new technologies. In addition, we cannot speak of a situation of stable knowledge just because the new technologies are in rapid and continuous change. The possibilities of new technologies change quickly and a substitute for the other.

Others authors (Hammersley and alt, 2012) play with words and speak about smart ideas. Smart ideas about live, work, eat & drinking, buy and play in the city. Smart ideas, with or without new technologies, of people who, as the author says in the back cover of the book, “want to make their cities a little more fun, clean, friendly, green and above all, restore a sense of community”.

In any case, really the new technologies can improve the activities in the city and therefore the economic efficiency of the city. In fact, the economic activities use resources for produces goods and services with capital and work. New ICT can take and analyze information more efficiently and thus increase efficiency of all types of activity. The new technologies are specified in applications (software) that run on terminals (phone, iphone, pc computer ...).

You can have ICT for anything, for improve traffic in Central Office Control or for general use by the people. If we focus on general users, for them all applications are a smart service because allows realizing many activities very efficiently. Smart is not the city but the citizen who properly use new technologies to make activities more efficient. So ICT can be a good instrument for improve public services and government of administration.

For example, in Spain as an another countries, each year the Ministry of Finance takes a draft of personal tax declaration for all people who should make the annual tax declaration. The declarant reviews the draft, check it and send the tax declaration with digital sign. The whole process is done online. The system greatly improves the management of annual tax declaration because people can do all in home. Usually, each year the application change. The users only know the final application. For users, the technology is on the cloud.

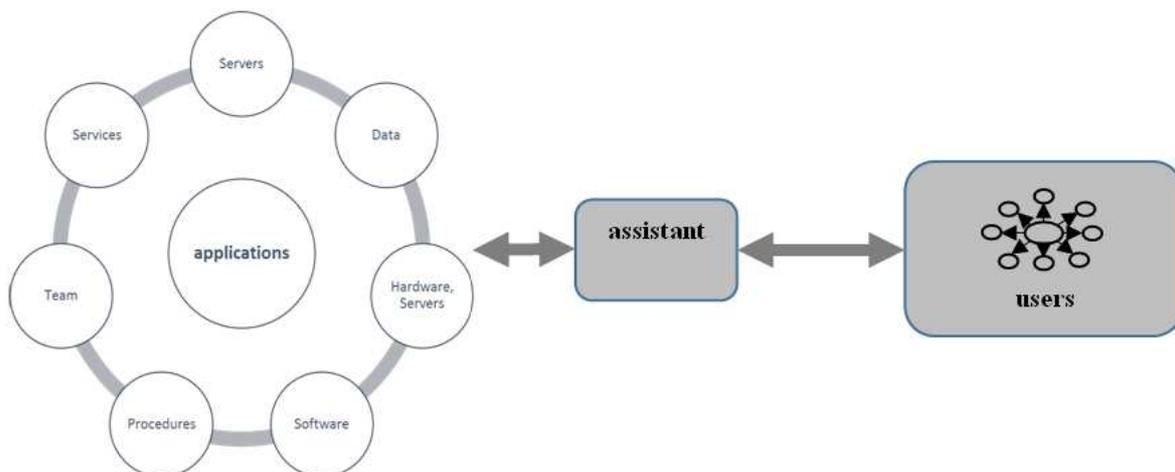


Fig 5. Scheme of applications system.

However, any new technology has positive and negative aspects. ICT technologies can have a good instrument but they are “on the cloud”. When applications fail, users are powerless to resolve the fault. Note you that application failures can cause major economic damage. For example, if you are a period for submission by application the tax declaration and application fail, then you can have a penalization. How can

you prove to a court not meet the deadline for application fault? In addition, if application fail, really what it is the problem? Application failure or you do not know the use of application. How can we have objective evidence and certain about what was the error that has occurred?

Therefore, it is therefore necessary customer service, particularly efficient for solving problems.

4 SMART AND SUSTAINABILITY

I cannot speak about smart cities without speak about the sustainability of the cities. At other times, the economy of the cities could be based on the exploitation of resources and the increased exploitation of resources to produce more goods and services. Now we know that, in general, the resources are limited and the economic growth cannot be based in to increase the exploitation of resources.

The sustainability of the cities is a complicated problem that have many faces.¹ Sustainability includes environmental, economic and social issues.

From the environmental point of view, the analysis and proposals focus on the efficient use of resources in the city and the efficient collection and treatment of waste of all kinds (water, air pollution, solid ...).

From the economic point of view, a balance between income and expenses is necessary for both private companies and public administration. The economy cannot base in a continuous increase in debt with no possibility of return.

From the social point of view, people must be aware of rules of sustainability and must be a democratic organization to effectively control compliance with the rules of sustainability.

ICT technologies can improve instruments for good development of these three groups of conditions. But only are instruments. The organization of our society is not yet prepared to manage sustainability. For example, the current financial crisis has been caused by international capital movements ("money" movements in e-city by internet) without any control by national governments to guarantee economic sustainability for people.

I think that efforts to achieve low carbon landscapes are very interesting (Scott & Ben-Joseph, 2012; Fraker, 2013). The experiences address many aspects of environmental sustainability of cities. But I want to stress the importance that all they give to the community. The community is essential to achieve a sustainable neighborhoods or sustainable districts. In this sense, highlights the contributions of Jan Gehl about the interventions in public spaces (Gehl, 2011; Gehl & Svarre, 2013).

According many authors, for sustainability, the community is very important. More actions for sustainability of the cities are based on the community and the community exist by direct relationships. So for a good democratic government it is necessary a local administration for community.

Our world and, in particular, our cities are very different form the reality of the world and the cities when our cities were founded. Usually, our local government system have the origin when the cities were founded.

Throughout the years, the activities of the cities has been materialized in urban forms (buildings, infrastructure, public spaces ...). The heritage of the city explain his history and becomes a sign of identity of its citizens. For this reason, society usually is opposed to the disappearance of municipalities.

However, the challenge of sustainability in our society is very strong. Or we get that our society is sustainable or our society will, with certainty, poorer. Therefore, it is necessary to adapt the governance of our society to our current reality of the world and the cities to be efficient in the guarantee of sustainability.

In Europe, in general, the governance of our society have different levels: european administration, states administration, regional administration and local administration. This paper is focused in local administration.

To generate a nearest neighbors administration is an ancient idea. For example, Jacobs already proposed his idea of the districts in 1961 (Jacobs, 1992). Jacobs proposed districts with 50,000-200,000 inhabitants to

¹ For to know a very complet list of sustainability topics about the city, you can see "Sustainability Urbanism and Beyond. Rethinking Cities for the Future". Edited by Tigran Huas. RIZZOLI. New York, Paris, London, Milan, 2012. It is a collective book where a lot of authors write about a large list of sustainability items in the cities.

optimize the management (governing and planning) of large cities. He realized that in a large city where the relationship between governors and governed is lost.

The idea of the d-city, the t-city and the e-city allows us to address the issue of sustainable management of the city, with rationality based on technology available today.

5 TO A SMART MANAGEMENT OF THE NEW CITIES

5.1 Local administration in Spain

D-level must be the level of local administration for services based in direct relations. In democratic situation this level is very important because is the administration with more proximity to citizen.

In Spain, municipalities or local administration have a roman origin. Actual municipalities are the results of continuous evolution to the present. The original criteria for functions and geographical limits are now obsoletes.

Over time, the people of the municipalities maintain their own identity based on their own history. History and identity of peoples maintain with few changes geographical boundaries and functions of local administration. In contrast, the urban reality has changed a lot.

Besides, in Spain, we have other levels for administration: regional (or autonomous communities) and state. It is an administration based in territory and oriented to manage territories (municipal, regional and state).

In local administration level, the more important organization are the municipalities but they are not the unique local administration. Also we can have another as a provinces, islands, association of municipalities, metropolitan areas ... Of all the types of local government that exist in Spain, only municipalities are democratic and have governments elected by the people.

In table 1, you can see the number of municipalities by population in Spain, 2010. The situation is anachronistic. Around 1.000 municipalities have fewer than 100 inhabitants.

People size in 2010	Number municipalities
>1.000.000	2
500.000 – 1.000.000	4
200.000 – 500.000	23
100.000 – 200.000	33
50.000 – 100.000	83
20.000 – 50.000	252
10.000 – 20.000	354
5.000 – 10.000	564
1.000 – 5.000	1937
500 – 1.000	1062
100 – 500	2759
< 100	1041
TOTAL	8115

Table 1. Municipalities by population, Spain 2010. Origin: INE.

Many municipalities have lost a lot of people and currently have less than 100 or 500 inhabitants. With so little population is impossible to have an autonomous administration nor implement new technologies. There is not enough critical mass.

At the other extreme, the more big cities as Madrid, Barcelona or Valencia, have a lot of neighboring municipalities united in an urban continuum. In fact, many public services (transport, schools, health ...) are shared.

The case of Madrid is especially unique. The inhabitants of Madrid was 3.265.038 in 2011. Madrid is also the capital of a region named Autonomous Community of Madrid which had 6.498.560 inhabitants in 2011. However, in fact, the metropolitan area of Madrid is larger than the Autonomous Community of Madrid. A part of Madrid metropolitan area is on another regions with own governments. Thus, in fact, there is no unity of government, or management, over an area that is a unique functional area.

In general, everyone think that it is necessary to change the local administration to add small municipalities as a way to obtain a minimum size and integrate municipalities that are actually urban conurbations. Thus, for a long time, studies are carried out in Spain to streamline the functioning of the local administration (Sáinz, 2004).

On the other hand, since 2007, the economic crisis in Spain is still very hard. Government need reorganized administration to make it more efficient. For this reason, last year approve the Act 27/2013 for rationalization and sustainability of Local Administration.² This has been a missed opportunity for a thorough reform of the local administration. This law eliminate any public local services and move another services to provincial administration which isn't a democratic administration. However, not introduce new technologies for public local services nor reorganizes administration.

Thus, now, researchers and scientists are in agreement with the need to reform the local administration but no government has been able to effectively reorganize. In fact, local governments are very protective of themselves and do not want to disappear nor decrease his government capacity in their territories. They do not want to miss her history nor her identity.

5.2 For a new vision of the city

If we recognize of different city level (d, t and e) we can think in public administration to service each level. It is an administration based in relationships and oriented to manage relationships. The t-city manage a complete territory but, in general, the c-city will be a litle zones inside the t-city. We can name this new vision as the e-city.

On the other hand, the idea of the d-city is similar or coherent with the idea of "superblocks" development by Salvador Rueda team in Agència d'Ecologia Urbana de Barcelona (BCNecologia, 2013). The same author has studied the urban sustainability in information society (Rueda & alt, 2012). The "superblocks" for Barcelona have 400x400 meters (9 Cerda blocks) and about 4.000 inhabitants. The proposal for improve sustainability in Barcelona is generate communities in "superblocks" border with traffic corridors. Public transport and private are concentrated in corridors. The "superblocks" have only buildings and public spaces for walking.

Bus public transport is organized by orthogonal network. This idea about mobility was applied in Vitoria by a plan of sustainable mobility and public spaces with success (Vitoria-Gasteiz City Council, 2011). Vitoria had honored as a Green Capital in 2012 by EU, among others reasons, for this project. Now Barcelona council is transforming its bus network progressively to orthogonal network.

In this way, if we apply the vision of e-city, the d-city is the area where citizens receive direct services by local administration, among them, the terminal service of digital applications. Of course, more application services can obtain home (i.e., citation for the doctor) but not all people has internet connection or know how use internet connection.

At the next level, the t-city adds all neighboring d-cities connects between them by transport system. This level administration management transport system and public equipment associates for aggregate public services. Again, among them, the terminal service of digital applications.

Finally, we can have another administration level as a regional level, state level or european level. Remember that applications are in continuous change. So we cannot think in static organization of

² The original name in spanish is Ley 27/2013, de 27 de diciembre, de racionalización y sostenibilidad de la Administracion Local, published in oficial Gazette in 30 of desember of 2013.

administration. Depends of the innovations in digital applications services and these innovation are unpredictable.

The location of application system for public services can be the t-city level or another higher level. All level must have a democratic system for select their government.

If we wanted apply this view of the organization of the administration in Spain, we must transform the current situation in the new situation. Change is not easy because, as we mentioned, people defend their history and identify. Therefore, it is necessary to compatibilist the new organization with the maintenance of history and identify.

5.3 Integrating history and identity in the e-city

If we want to implement the new vision of the city, it is necessary a progressive process because it is not possible change quickly an organization of public administration, and its administrative limits, on other.

Besides the reality of the communities in the d-city can change. I mean, it may happen that some communities decrease size and must join with other. Also may be that new communities are generated by new urban developments. Consequently, we should see the e-city as a dynamic reality.

On the other hand, now, in general but with exceptions, administration in Spain, particularly local administration manages by paper documents. Administrative files are archived in paper, only in paper. Therefore, it is very complicated to change the geographical boundaries of the local administration because only we have an historical archive on paper in each municipalities.

For the e-city administration we need, as a necessary condition that all information must be archived in digital format, some information in data base according applications and general documentation in pdf format or similar. In this situation, if all administration can use the database it will be easy change the geographical boundaries of local administration. Also, except personal data, is possible design free access to public information by internet for general, economic and environmental information of local administration. This facilitates participation in take decision about environmental issues as a say Aarhus Convention.

In Spain, we have a very good geographical information system for cadastral date.³ This is a database with geographical referent. So it is possible use this database as a source and complement it with another data for local administration management. In this case, the information will be on the cloud.

For generate d-city we have two possible cases. First case, when we have great cities and we must generate communities for d-city level. Local government is elect by community and provide services that requires a direct relationship with citizens. Several communities can be associated, for historical reasons and identity, to develop joint cultural activities.

In this situation, we can imagine the t-city with diverse communities distributed in their territory. The t-city, with democratic government, manage territory.

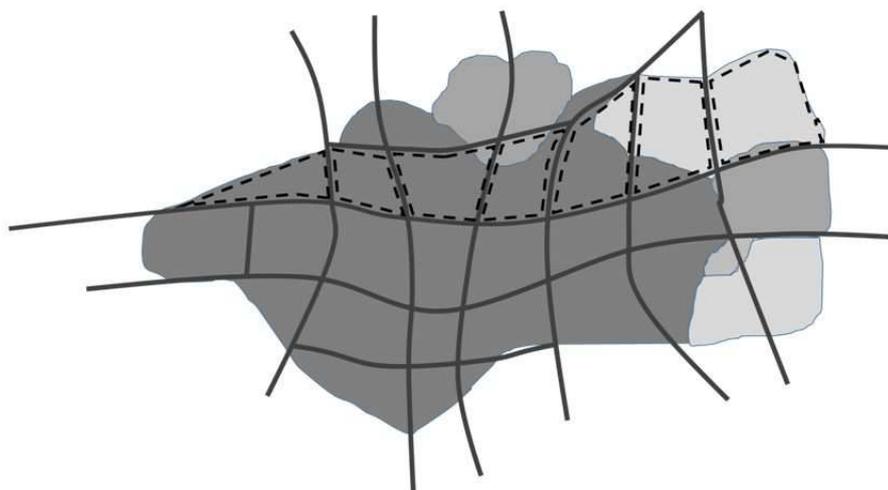


Figure 1. Generating communities for d-city.

³ You can know public characteristics of any cadastral parcel registered in Spain in <http://www.sedecatastro.gob.es/>

We have a second case when we have several historic municipalities with small population. In this case we must add municipalities for generate a community with minimal size. To ensure continuity of the history and identity of each historical municipality, they must be represented in the representative assembly of the whole new community.

In this situation, we can imagine the community of the d-city as association of diverse small communities distributed in rural territory. The t-city will comprise several communities and will manage services for the entire territory with democratic government.

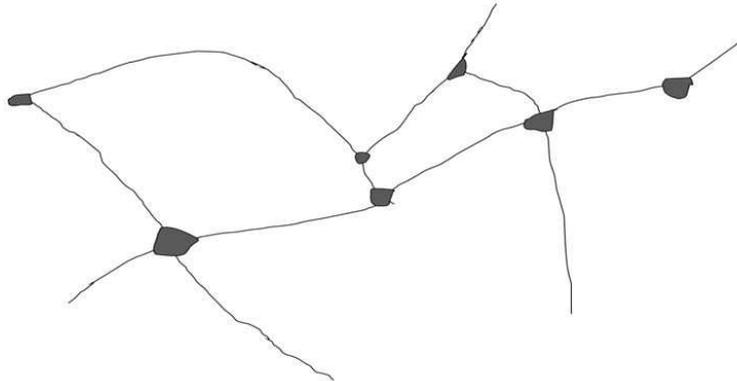


Figure 2. Adding municipalities for d-city.

It is easy to understand that all these changes cannot occur in a fast. It should be a gradual process in which, previously, must be sufficiently developed computer applications necessary for the process itself and for the results are successful.

Although the idea of e-city and its management may seem radical, but the fact is that young people in our society are very often on the cloud with their iPhone, iPad or tablets. So perhaps it is the time to take on the reality of our world.

6 CONCLUSION

The reality that society lived when most European cities were founded is very different from today. In the origin, we have a community organized with local administration (municipality), which realize activities by direct relations between people and limited for walking distance. We can name this kind of city as d-city. The relationships between community facilitate innovation and knowledge diffusion.

Since 1900s innovation intense transport systems occurs. It allows the efficient connection between communities for the development of multiple activities. We can name this new reality as a t-city: any d-city activities connected by transport system.

Internet introduce a new thecnology for relationship. So people have direct relations with another people for different activities (residence, studies, work ...) connects between them by system transports and have e-relationships with the same people or another of the world by internet. We can speak of the e-city.

Obviously, the “smart city” is an undefined concept. Can be a description about the possibilities of new digital technologies for improve activities in the city but also we can speak of smart ideas, with or without new technologies, of people who “want to make their cities a little more fun, clean, friendly, green and above all, restore a sense of community”.

I can't speak about smart cities whitout speak about the sustainability of the cities. According a lot of authors, for sustainability, the community is very important.

In Spain, the original criteria for functions and geographical limits are now obsoletes. Besides, in Spain, we have other levels for administration: regional (or autonomous communities) and state. It is an administration based in territory and oriented to manage territories (municipal, regional and state).

Because of the financial crisis, government need reorganized administration to make it more efficient. The last reform in 2013, does not address the fundamental problems.

If we recognize of different city level (d, t and e) we can think in public administration to service each level. It is an administration based in relationships and oriented to manage relationships. The t-city manage a

complete territory but, in general, the c-city will be a little zones inside the t-city. We can name this new vision as the e-city.

For the e-city administration, we need as a necessary condition that all information must be archived in digital format. We can imagine new t-city by generating d-city or adding small municipalities. The t-city and the d-city must have democratic government. The t-city manage transport system and services for territory. The d-city manage communities.

Although the idea of e-city and its management may seem radical, but the fact is that young people in our society are very often on the cloud with their iPhone, iPad or tablets. So perhaps it is the time to take on the reality of our world.

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